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SCIENCE

A WEEKLY JOURNAL DEVOTED TO THE ADVANCEMENT OF SCIENCE, PUBLISHING THE
OFFICIAL NOTICES AND PROCEEDINGS OF THE AMERICAN ASSOCIATION
FOR THE ADVANCEMENT OF SCIENCE.

FRIDAY, DECEMBER 2, 1904.

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MSS. intended for publication and books, etc., intended for review should be sent to the Editor of SCIENCE, Garrison-on-Hudson, N. Y.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE AND CONVOCATION WEEK.

THE permanent secretary of the American Association for the Advancement of Science has compiled an abstract of the communications printed in SCIENCE early in the year in regard to the meetings of the American Association and the special scientific societies, which is here printed, in order that further discussion may be elicited either in the columns of SCIENCE or at the approaching meeting of the association.

NICHOLS, E. L. (29 Jan., '04, No. 474, p. 192).

The plan of convocation week is a distinct step in advance. * * * The general feeling in the west seems to be for summer meetings; in the east for winter meetings. Many of us would be glad of a choice, with the privilege of attending either or both. Summer meetings should be held in some attractive and accessible resort; in mountains, on lakes or at the seashore. Select earliest possible date after closing of colleges and thus avoid the summer rush to these places. Bringing together of various affiliated societies at a common meeting place helps to mitigate one of the most unfortunate features of modern specialization in science—the separation of men of science into small groups. Question of expense of two meetings a year not worthy of consideration. It is imperative that the association afford those members who can not attend the winter meetings an opportunity for intercourse with kindred spirits at time and place possible to them.

W. LE CONTE STEVENS (29 Jan., '04, No. 474, pp. 192-4).

Gives his hearty approval to the editor's suggestions and views. Commends as well worth trying the plan (see editor's article) of each society sending accredited delegates to the annual meeting.

J. S. KINGSLEY (29 Jan., '04, No. 474, pp. 194-5).

It seems best that societies retain their independence and hold their meetings without regard to movements of larger organization. Might meet together where accommodations were adequate but such places would be few and far between. Separate societies have by right of preemption a claim upon Christmas holidays for their meetings.

JAS. LEWIS HOWE (5 Feb., '04, No. 475, pp. 228-230).

Each society should have its regular annual meeting in *summer* for presentation of papers, for excursions, for study or for whatever is of most value to the members as specialists. Meetings should be held without regard to those of any other society, as to either date or place. In winter should be held a *convocation week* meeting of all the scientific societies together with the American Association. No papers of restricted interest should be read; presidential addresses and lectures should be given and sectional discussions on topics of general *sectional* interest. No inconsiderable attention should be paid to social side of these meetings but each day should be properly apportioned. Advocates a federation to take place of existing organizations. Council to be made up of representatives chosen by the societies. Finances to be on same basis as at present. Addresses to be printed in *SCIENCE* and 'Proceedings' to be discontinued. Such a winter gathering should be held in a large and easily accessible center. To obviate difficulty of great distances separating workers hold general meeting biennially and divide country into several geographical sections with meetings in each on alternate years.

H. W. WILEY (5 Feb., '04, No. 475, pp. 230-231).

Advocates the solidifying of smaller societies into national societies which latter are to bear same relation to sections in the American Asso-

ciation for the Advancement of Science as the American Chemical Society does to Section C at present. Believes there is too great a tendency to organize separate and independent societies in each branch of investigation. Believes in American Medical Society affiliating with the American Association for the Advancement of Science. If all this could be accomplished we should more than quadruple the membership.

JOHN M. CLARKE (5 Feb., '04, No. 475, pp. 231-2).

Confesses to a 'feeling of apprehension at the insistent and impetuous efforts which are making toward the centralization of scientific endeavor in the United States and the creation of a formidable scientific machine in which individuality is to be reduced to a cog.'

"I am disposed to apprehend that centralization of science means the creation of a juggernaut which will crush endeavor, stupefy ambition, incinerate stimulus, minify personal achievement and cachinnate at honor."

O. T. MASON (5 Feb., '04, No. 475, pp. 232-233).

Take especial pains to have at annual and mass meetings men of distinction, of whom all have heard and whom they desire to see. Encourage specialization. Closest affiliation of specialists and aggregation into a mutually helpful cooperation are necessary to the intention of a science. It can not be too compact or too lively.

SIMEON E. BALDWIN (12 Feb., '04, No. 476, pp. 263-264).

I think the association meetings should be held when and where they will attract the largest attendance and sectional or affiliated society meetings so arranged as to make it easy for members to pass from one room to another and hear something on many subjects. Largest attendance, I believe, can be secured in *July* or *August*. Convocation week is not even a free week for all college and university professors, to school teachers seldom free, and to business and professional persons, rarely if ever free.

THEODORE W. RICHARDS (12 Feb., '04, No. 476, pp. 263-264).

A general meeting once a year ought to be

enough. Both midwinter and midsummer are likely to be unpleasant for travel in America, and therefore early autumn seems most feasible time, unless colleges could be induced to give a common spring vacation. Another argument against midwinter is that laboratory work is usually in best shape to show after winter-work is over and in the spring or autumn.

WILDER D. BANCROFT (12 Feb., '04, No. 476, pp. 264-265).

Improvement of meetings of sections necessary before men working in different fields can be brought together. Attendance at meetings largely from a sense of duty. Presiding officers too often overload the program and give no opportunity for discussion. Local members plan too many excursions for each afternoon. It is a waste of energy by committee and by visitors. Usefulness of the meeting lies in the personal element, in making men acquainted, in giving them a chance to discuss things and to exchange ideas. In morning have short papers; if possible of general interest, each paper followed by animated discussion. In afternoon men get together to talk over things more carefully, also for one excursion a day. In evening, general social gathering not confined to single sections.

CHAS. W. HARGITT (12 Feb., '04, No. 476, p. 265).

Must of necessity exist many technical societies, and there will be more rather than fewer. There then remains the 'imperative necessity for such organization of scientific effort as will make possible concentrated and consistent and direct sentiment for the enactment of needed measures of influence for whatever emergency may call for such.' Society of Naturalists did much of this class of work but it was too limited. Believes that the American Association for the Advancement of Science and in 'technical societies there are conditions and factors which properly correlated and adjusted, afford the most hopeful outlook for organized scientific progress within present generation.'

C. H. HITCHCOCK (12 Feb., '04, No. 476, p. 266).

Likes suggestion of two meetings and thinks localities might be chosen to fit the season; winter in the south, summer in the north or between east and west. With some affiliated societies, they could meet in the winter and put all their energies into work in the summer. The publication question is still open; if there were two annual meetings there could be two volumes printed, with some of the more important papers.

J. H. LONG (19 Feb., '04, No. 477, pp. 309-310).

Advocates the plan of *Section C* and the *American Chemical Society*. This will necessitate deciding upon and publishing places of meeting several years ahead. Suggests a committee from association, perhaps committee on policy, taking matter up and inviting co-operation from various societies. Thus a program for several years in advance can be prepared. *Convocation Week*: Not fair to draw conclusions from either the successful Washington or from the St. Louis meeting which was not so satisfactory. Personal preference for general meeting in June, just after commencement season. This is often too early for eastern schoolmen. September too late for college men and in August it is too hot.

MARCUS BENJAMIN (19 Feb., '04, No. 477, pp. 310-311).

What is needed is a consistent policy extending over a term of years in order that the advantages and disadvantages may be properly weighed. Council should be as nearly permanent as possible and changes limited to the new officers elected each year. The governing body should be changed only by a majority of its members.

JAMES E. RUSSELL (19 Feb., '04, No. 477, pp. 311-312).

Suggests that once in two years all meet in *same place* and on alternate years the affiliated groups serve their various interests. Much would be gained by returning biennially to the same place of meeting. It would tend to give the association a fixed home and a permanent and reliable constituency.

C. M. WOODWARD (19 Feb., '04, No. 477, p. 312).

Prefers special meeting at convocation week and the general association meeting ('scientific, technical and social') to be held in summer, either week before or after National Educational Association. Persons claiming membership in affiliated societies ought to pay something into association treasury or else their society pay for them.

ERNEST FOX NICHOLS (26 Feb., '04, No. 478, p. 340).

Proposes two meetings: popular one in summer and a convocation week in winter which would thus serve as 'a clearing house' for the affiliated societies and the sections. Believes financial matters will interfere with two meetings.

E. H. S. BAILEY (26 Feb., '04, No. 478, p. 341).

Convocation week meetings have proven satisfactory. * * * General meeting in late summer breaks in too much on vacations or seriously interrupts laboratory investigations or scientific excursions. Can be no valid objection to having semi-annual meetings of sections or of affiliated societies held during the summer months, but this should not interfere with attendance at the larger and more important *annual* meeting held in the winter at some central and convenient point.

T. C. HOPKINS (26 Feb., '04, No. 478, pp. 341-342).

Proposes meetings of association sections in midsummer (not all sections at the same place) at such places as can be used to benefit that particular section by excursions, study or research. Sections could go to smaller places and thus enlarge scope of society and make many more adherents. Then have also the regular winter meetings.

THOMAS H. MACBRIDE (26 Feb., '04, No. 478, pp. 342-343).

Suggests for the botanists to maintain the section for botany in the association at all hazards and have but a single Botanical Society of America with at least two meetings a year, and always in connection with the American Association for the Advancement of Science. Let program of Section G con-

sist of two parts; one of popular character held in forenoon of each day; the other to be purely professional.

CHAS. S. HOWE (4 Mch., '04, No. 479, p. 383).

Suggests appointment of representatives from each national society to meet at some central point this summer and thoroughly discuss the question in all of its bearings. Believes that SCIENCE might take the initiative and request societies to send representatives to such a meeting.

J. C. BRANNER (4 Mch., '04, No. 479, pp. 383-384).

States that 'those of us who live on the Pacific slope have some objections peculiarly our own.' Loss of time from Christmas vacation by rushing across continent and again at close of meetings recrossing. Trip is one of several thousand miles and requires from six to ten days. 3. Unable to obtain sufficient reduction in railway rates. 4. Loss of a few days that would be spent quietly at home. *Summer time* the meeting will only occupy part of the vacation period. However we fully realize that the question should be settled by the majority.

CH. WARDELL STILES (4 Mch., '04, No. 479, pp. 384-385).

Let the present association be taken as a basis for national organization. Let present council be supplanted by a house of delegates, composed of representatives from each state society, number to be in proportion to the state membership; let all business affairs, questions of policy, etc., be transacted by this body. Let national association hold meetings convocation week and be divided into as many sections as necessary or desirable for purpose of presenting papers. *But* let it also be divided into state associations for purposes of representation.

C. JUDSON HERRICK (4 Mch., '04, No. 479, pp. 385-386).

Believes that final adjustment will be "summer meeting of association with field excursions prominent, some of sections perhaps meeting in different places, and a convocation meeting in the winter devoted mainly to reading of technical papers, with a due proportion

of time devoted to public discussions and lectures on themes of general scientific interest and to social intercourse. Any attempt to force societies into summer months is foredoomed to failure."

CHAS. E. BESSEY (11 Mch., '04, No. 480, pp. 429-431).

Have one complaint about convocation week. It should come a week later or the state meetings a week earlier; they now interfere. Am inclined to accept Dr. Cattell's suggestion of a big winter meeting alternating with smaller and less formal summer meetings. Necessary to fix on places of meeting several years in advance and decide on general features of programs a year or so before the meetings.

GEO. F. ATKINSON (11 Mch., '04, No. 480, pp. 431-433).

Believes association is drifting from policy of keeping in close touch with general public and young students. Due to two causes or to one of the two: (1) To the change from summer to winter meetings; (2) to the tendency to discontinue former policy of extensive work and to desire to federate the different societies of the country. * * * *Time of Meeting*: Difficult unless Professor Nichols's suggestion is adopted and we hold both a summer and a winter meeting. Summer in the north and winter meeting in the south.

W. J. HOLLAND (11 Mch., '04, No. 480, pp. 433-434).

Idea of convocation week theoretically admirable but selection of time unfortunate. Christmas joys and festivals antedate the American Association for the Advancement of Science. Time of meeting should be in mid-summer vacation.

W. F. GANONG (18 Mch., '04, No. 481, pp. 463-464).

Local sectional meetings should be held under auspices of *American Society of Naturalists*. A second group of societies desirable for (1) Vigorous but friendly rivalry will be distinctly advantageous and much preferable to a society monopoly. (2) American Association unlimited as to qualifications of membership and must always have and care for a large semi-scientific or popular element. That

division of American Naturalists Society in which the American Association for the Advancement of Science meets should join with it in its meeting. Advocates strong national society for each of sciences, these to be divided into sections holding simultaneous meetings in geographical centers along with other scientific bodies affiliated with the American Society of Naturalists.

ARTHUR H. FORD (18 Mch., '04, No. 481, pp. 464-465).

Presents following plan to increase usefulness and influence: *Organization*: In addition to the present organization, establish a branch in each community where there are a number of members of the association. *Meetings*: In addition to the general meeting have each section meet once a year and each branch once a month, or oftener if profitable. *Publications*: Publish SCIENCE as at present, and in addition publish all papers presented at section meetings and the more important of those at branch meetings in the 'Transactions'; issuing a set of transactions for each section.

Best time for holding general meeting, at which social element should be emphasized, appears to be in early summer.

WILLIAM NORTH RICE (1 April, '04, No. 483, pp. 548-549).

Believes it is a mistake to change time of meeting from summer to winter. Inclemency of weather, inability to secure long vacation at this period, and love of home-life at this time are sufficient reasons. Believes it to be a good time for meeting of societies of restricted membership. Believes it to be a good plan to return to former arrangement.

ARTHUR HOLLICK (15 April, '04, No. 485, pp. 620-621).

Main province of association would seem, in future, to be that of organization and popularization of science. *Let summer meetings be continued* for purpose of arousing and maintaining popular interest and to serve as a common meeting ground for scientific and non-scientific men. Social element to be encouraged and get beginners and amateurs acquainted with older members. Open question whether winter meetings in addition are

advisable. Tendency to make these technical and it might be wise to encourage this idea. Let affiliated societies here take the leading position.

E. P. FELT (15 April, '04, No. 485, pp. 622-623).

Two general sessions of association ought to meet every demand at the meetings; one to mark the opening of the meeting, the other to give the president opportunity to deliver his address. Notices for each day could appear on program, thus allowing unbroken day. Morning meetings devoted to general papers. Afternoon meetings to special papers before subsections or societies. Evenings to sessions of members for short addresses on topics of general interest. We would favor the continuing of the complimentary lecture to the people of the city where the meeting is held. All evening meetings should close by 9:30, leaving time for banquets, etc.

W. J. BEAL (20 Mch., '04, No. 490, pp. 797-798).

"Let association keep up all its sections, possibly adding to the number, freely cooperating with special societies, each section showing a willingness to unite in preparing a program with any one or more special societies having a like object." Years ago Professor Cope, Mr. W. A. Rogers and Mr. E. S. Morse objected to presentation of popular papers. I have recently thought it desirable to have a number of selected speakers present some topic or series of topics in a popular way to attract 'outsiders.'

3. "Education, economics, but not philology."

4. "Once a year, preferably in winter, till this date has had a fair trial."

5. "Meet most of time in populous regions from Washington to Boston, Detroit to Chicago, where many people are most sure to attend."

AN ANALYSIS OF THE PHENOMENA OF ORGANIC 'POLARITY.*

THE so-called 'polarity' that is shown in the regeneration of animals and plants has

* Read before the National Academy of Science, November 16, 1904.

always been regarded as an expression of a fundamental influence of the old upon the new growth. By polarity is meant in a general way that from the anterior end of a piece of an animal a new head regenerates, and from the posterior end a new tail. Many exceptions to this rule have been discovered in recent years, and in the light of these discoveries, I think, we are now in a position to undertake a more thorough analysis of the phenomena of organic polarity than was possible without these new facts to guide us.

I shall group the main points to be discussed under four artificial headings: (1) 'Regeneration when *no* Alternative Exists at a cut Surface,' (2) 'Regeneration when an Alternative does Exist,' (3) 'Regeneration when the Relative Rate of Growth Depends on Preformed Elements (Buds)' and (4) 'Lateral Regeneration.'

1. REGENERATION WHEN NO ALTERNATIVE EXISTS AT A CUT SURFACE.

If the tail of a tadpole is cut off a new tail regenerates at the posterior end of the tadpole. The tail that is cut off does not ordinarily regenerate at its anterior end, *because* it dies before regeneration can take place. If it is kept alive, either by grafting or by remaining partially attached, it regenerates from its anterior end, *not* a tadpole, but another tail, reversed in direction. The conditions are such that both at the anterior and at the posterior cut surfaces only a tail can develop. The new tail from the posterior cut surface is in the direction of the old polarity, while that from the anterior cut surface is in a reverse direction.

In the earthworm a similar condition has been found. If the worm is cut in two at any level behind the gizzard, both cut ends regenerate a tail. Anterior to this level, however, the posterior piece regenerates a head on its anterior end. It is